

From: [POULSEN Mike](#)
To: [Chip_Humphrey/R10/USEPA/US@EPA](#)
Subject: FW: Portland Harbor - Comparison of Lamprey Data with TRVs
Date: 03/21/2006 11:55 AM
Attachments: [Lamprey Data Summary.xls](#)

Chip -

Here's what I sent to the eco group. If you want additional information, let me know.

- Mike

-----Original Message-----

From: POULSEN Mike

Sent: Tuesday, March 14, 2006 12:25 PM

To: PETERSON Jenn L; 'chris.thompson@eiltd.net'; (b) (6); 'jeff.baker@granderonde.org'; 'Jeremy_Buck@fws.gov'; 'Goulet.Joe@epa.gov'; 'howp@critfc.org'; 'rgensemer@parametrix.com'; 'robert.neely@noaa.gov'; 'Ron.Gouguet@noaa.gov'; 'stanv@ctsi.nsn.us'; 'Shephard.Burt@epamail.epa.gov'

Subject: Portland Harbor - Comparison of Lamprey Data with TRVs

I haven't participated in the eco lamprey discussions, but in preparation for Wednesday's meeting, I took a look at the human health data. In the summer of 2004, 120 lamprey were collected from Willamette Falls. They were divided into 4 composites of 30 fish each. Samples were analyzed for arsenic, mercury, organochlorine pesticides, PCBs, and chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans. The pesticides were not detected (UJ qualified), although DDT, chlordane, and dieldrin were included in the health evaluation at their detection limit. In general, concentrations of organics were well below concentrations detected in other fish (smallmouth bass, carp, brown bullhead, and black crappie) collected for the human health risk assessment in Portland Harbor.

The recommendations of the Oregon DHS health consultation for the Confederated Tribes of Siletz Indians are:

- Women of child-bearing age, especially pregnant women and nursing mothers, children under 6 years of age, and people with liver or immunological problems, should consume no more than one 6-ounce meal of lamprey per month.
- The Oregon Department of Human Services has recommended that CTSI members can ingest up to three 8-ounce meals of lamprey per month.

I think the data collected are sufficient for drawing conclusions regarding potential threats to human health from consumption of lamprey.

For ecological effects, composite data do not directly allow us to evaluate impacts to adult lamprey themselves. This is because comparison of a mean concentration to a TRV is not useful. For example, if the mean body burden is equal to the TRV, half of the fish could be exposed to body burdens above the TRV. Certainly this would be

the case if the median concentration were equal to the TRV. To address this issue, I followed up on a suggestion to estimate individual variability based on composite sampling results. The point made in the paper by John Skalski that Burt sent to us is that variance for individuals can be approximated by the number of samples in a composite times the variance of the composites. This is equivalent to:

Standard Deviation (individual fish) =
 $\text{SQRT}(\text{number of samples in each composite}) \times \text{Standard Deviation (composites)}$

We've got a large number of fish in each composite, and four composites, so this seems to be a good test of the method. The results are shown in Table 1. Dave Stone provided the lamprey data. The TRVs were taken from the PRE. I calculated both 90th percentiles and 95th percentiles to look at upper bounds (on the data).

The results are encouraging. It appears that individual adult lamprey do not have body burdens greater than the TRVs. I think this is a useful result to discuss at Wednesday's meeting.

- Mike